

REMARKS

Claims 1-4 and 6-11 are pending.

The “Finality” of the Action Should Be Withdrawn

Applicants note that the Action has been made final. The Office generally does not make the first Office Action after the filing of an RCE a “final” rejection, where, as here, the Applicants have in good faith filed supplemental Rule 132 Declaration evidence to advance the prosecution and show the patentability of the invention.

The Examiner is kindly requested to reconsider and withdraw the finality of the Action.

Withdrawal of the Section 102(b) Anticipation Rejection Based On Uenishi et al

Applicants note with appreciation that the section 102(b) anticipation rejection of claims 1-4 and 6-11 based on Uenishi et al has been withdrawn.

The Positive Resist of the Invention Is Patentable Over Uenishi et al and Ishihara et al

In Paragraph No. I of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Uenishi et al (6,489,080) considered in view of Ishihara et al (2004/0033434).

Applicants submit that this rejection should be withdrawn because Uenishi et al and Ishihara et al do not disclose or render obvious the positive-working resist composition of the present invention.

As recited in independent claim 1, the present invention relates to a positive-working resist composition. The resist composition includes:

(A1): A resin containing a repeating unit represented by formula (1) shown in claim 1 and a repeating unit represented by formula (2) in claim 1. The resin has a property of being insoluble or sparingly soluble in an alkali developing solution and becoming soluble in an alkali developing solution by the action of an acid.

(B): A compound capable of generating a sulfonic acid upon irradiation with active rays or radiation, in an amount of from 5 to 20% by weight based on the total solids content of the resist composition.

And (D): A compound capable of generating a carboxylic acid upon irradiation with active rays or radiation.

Uenishi et al '080 does not anticipate or render obvious the present invention for at least the reason that Uenishi et al '080 does not disclose or suggest the use, in combination, of (B) a compound capable of generating a sulfonic acid upon irradiation with active rays or radiation, in an amount of from 5 to 20% by weight based on the total solids content of the resist composition, and (D) a compound capable of generating a carboxylic acid upon irradiation with active rays or radiation.

Ishihara et al does not make up for the deficiencies of Uenishi et al '080. While a compound capable of generating a carboxylic acid is essential in Ishihara et al, Ishihara et al does not teach the combined use of (D) a compound capable of generating a carboxylic acid, with (A1) a resin containing a repeating unit represented by formula (1) and a repeating unit represented by formula (2), and (B) a compound capable of generating a sulfonic acid, in a specific amount, as claimed in the present application.

Even if a prima facie case of obviousness could be established based on Uenishi et al in view of Ishihara et al, which it cannot, the evidence of record rebuts any prima facie case of obviousness and establishes the patentability of the present invention.

The Examiner responds to the Declaration evidence in Paragraph No. IV at page 8 of the Action.

Applicants respectfully submit that there are several problems with the Examiner's response. The evidence that has been submitted is persuasive of patentability.

First, the Examiner states that "Applicants' Declaration under Rule 131 filed on 13 June 2006 has been considered. . . ." However, that Declaration was to be considered together with the previous Declaration filed November 17, 2005. The Examiner should consider the evidence in its entirety. It appears that the Examiner may not have done that here.

Second, the Examiner states:

There is on the record that applicants could not be able to show an unusual or unexpected result for a 'positive working resist composition', per se, as claimed. Instead, applicants rely on the properties of the composition after being coated, exposed and developed. . . .

With due respect, the Examiner's point has no merit from a legal standpoint. As pointed out in previous Responses, a chemical composition and its properties are inseparable, insofar as patentability is concerned. See, e.g., In re Papesch. The very expression "unexpectedly superior results" shows that we look to the results obtained with a composition in assessing its patentability.

Next, the Examiner's concern that "An allowed claim or a patent would have no value, if someone later show . . ." is similarly lacking in merit. Basically, the Examiner is questioning the Declaration evidence, but the Examiner has no basis for doing so. The Examiner has not pointed to any reason to doubt the validity of the sworn Rule 132 Declaration evidence.

Further, the Examiner asserts that "Except for the showings of the uses of 5.5 and 19.5 wt% sulfonic acid generator, all other embodiments have little to no value because they are not commensurate in scope with the claims."

Again, there is a problem with the Examiner's reasoning. First of all, as to the two "showings" using 5.5 and 19.5 wt% sulfonic acid generator, the Examiner apparently concedes that they "have value." But, apparently, he gives them no value or weight. The two tests in question are entitled to fair weight and they are persuasive of patentability.

Furthermore, the other embodiments of the invention, specifically, the two embodiments shown in the previous Rule 132 Declaration filed November 17, 2005, are entitled to weight also, because, considered together with the 5.5 and 19.5 wt% embodiments, as they should be, they provide a representative sampling of results obtained with the invention across the recited range of sulfonic acid generator. Patentability is to be judged on the entire evidence of record.

Finally, the Examiner states that "The showings are improper because the comparative image using non-applied 'Resin I' from none of the above applied sets of references."

Here, the Examiner appears to have overlooked that the relevant comparative examples for purposes of the present rejection are the two comparative examples in the previous

Declaration filed November 17, 2005. Those comparative examples employed the resin and acid generator of Uenishi et al, the primary reference for the present rejection.

In sum, the evidence presented in the two Rule 132 Declarations in question is entitled to fair weight and is persuasive of patentability.

In view of the above, reconsideration and withdrawal of the § 103(a) rejection based on Uenishi et al in view of Ishihara et al are respectfully requested.

The Claimed Resist Composition Is Patentable Over Ishihara et al Taken Alone

In Paragraph No. II of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Ishihara et al (2004/0033434).

Applicants submit that this rejection should be withdrawn because Ishihara et al does not disclose or render obvious the positive-working resist composition of the present invention.

Under the law, anticipation under section 102 requires identity of invention. Ishihara et al does not identically disclose the present invention.

Specifically, and as explained in the Responses filed April 13 and June 13, 2006, Ishihara et al does not identically describe or anticipate the present invention. The Examiner has not pointed to a specific working example in Ishihara et al '434 which anticipates the present claims, and there is no description in Ishihara et al which would cause a person of ordinary skill in the art to immediately envision the resist composition of the present invention. To the contrary, the Examiner has reconstructed the positive-working resist composition of the present invention from Ishihara et al's generic disclosure using hindsight. Ishihara et al in formula [11] at page 7

and formula [12] at page 8 discloses a very broad genus of resins. The Examiner has made numerous selections to reconstruct the present invention. For example, the Examiner has required t to be a natural number, but t may be 0.

Similarly, the Examiner has chosen $R^{(18)}$ to be an alkyl group to satisfy the requirements for resin A2 in present claim 3. However, formula (3) in present claim 3 requires that Z_1 be a hydrocarbon group having from 1 to 5 carbon atoms, whereas $R^{(18)}$ in Ishihara et al '434 is an alkyl group "having generally 1 to 10 carbon atoms." Thus, the Examiner necessarily has selected only those groups having 5 carbon atoms or less.

Further, in formula [12] of Ishihara et al, the Examiner has required that r' be a natural number, when r' in formula [12] of Ishihara et al may be 0.

Still further, there is nothing in Ishihara et al '434 which suggests using, in combination, a resin satisfying the requirements for resin A1 of the present claims and a resin satisfying the requirements for resin A2 of the present claims, as required by present claim 3.

Still further, the Examiner has selected $R^{(19)}$ in formula [11] and [12] of Ishihara et al to be a hydrogen atom, apparently to meet formula (4) in present claim 6. See the first repeating unit illustrated for formula (4) at the bottom of page 22 of the present specification. In regard to claim 6, the Examiner has also required that e be a natural number other than 0, when per Ishihara et al., e may be 0.

Even still further, Ishihara et al does not disclose working examples which use a resin corresponding to the resin described in the present application. In the repeating unit represented by formula (1) contained in the resin of the present invention, Z represents a hydrocarbon group

having from 6 to 30 carbon atoms. In contrast, Ishihara et al only discloses a repeating unit with a hydrocarbon group having 2 carbon atoms (ethoxy) in the position corresponding to -O-Z in present formula (1). See the resin employed in Experimental Example 1 at page 16 of Ishihara et al. That is, the structures of the resins are originally different.

A similar analysis could be made for present claim 7, as for claim 6.

For all of these reasons, Ishihara et al '434 simply does not identically disclose (anticipate) or fairly suggest (render obvious) the positive working resist composition of the present invention. To reconstruct an invention from a highly generic disclosure based on hindsight, as has been done in the present case, is improper and is not the appropriate test of patentability under §102 or §103. The present invention is patentable over Ishihara et al '434.

Even if a prima facie case of obviousness could be established based on Ishihara et al, which it cannot, the Rule 132 Declaration submitted with the Response filed June 13, 2006 provides evidence of unexpectedly superior results and supports the patentability of the present invention over Ishihara et al.

The Examiner criticizes the Declaration evidence on the basis that Applicants have not provided a comparison to Ishihara et al. With due respect, the Examiner is not correct -- Applicants have provided a comparison to Ishihara: Specifically, "Resin I" in the most recently filed Declaration is a resin of Ishihara et al. Therefore, Applicants do not understand the Examiner's criticism that "The showings are improper because the comparative image using non-applied resin 'Resin I' from none of the above applied sets of the references." See page 9 of the Action.

For the Examiner's convenience, the Declaration evidence is reviewed below.

Examples a and b reported in Mr. Nishiyama's Declaration filed June 13, 2006 provide experimental data demonstrating the superior results obtained with the present invention. Both of Examples a and b employ a sulfonic acid generator in an amount within the scope of claim 1 of the present application. Comparative example a' demonstrates the difference between the present invention and Ishihara et al (US 2004/0033434). Comparative example a' employs Resin I described in Ishihara et al, which corresponds to a resin containing a repeating unit represented by formula (1) of the present application in which R_1 , R_2 and R_3 represent a hydrogen atom; n represents 0; R_4 represents a methyl group; and Z represents C_2H_5 . Resin I of Ishihara et al is outside the scope of formula (1) of present claim 1 because the C_2H_5 group is outside the definition of Z in present claim 1. (Specifically, Resin I of Ishihara et al is the Poly[4-(1-ethoxyethoxy)styrene/4-tert-butoxystyrene/p-hydroxystyrene] resin used in Experimental Example 1 at page 16 of Ishihara et al. The (1-ethoxyethoxy)styrene repeating unit is the repeating unit of interest.)

From the comparative experimental data shown in Mr. Nishiyama's Declaration in addition to the working examples of the present specification and the comparative experimental data in the Rule 132 Declaration filed on November 17, 2005, it is understandable that the present invention provides unexpectedly superior effects. From a comparison of Examples a and b with Comparative Example a' which employs Resin I of Ishihara et al, it is understandable that superior effects in terms of sensitivity, resolution, pattern shape and line edge roughness etc. can be achieved by using a specific resin and a sulfonic acid generator within a specific amount

range, and further a carboxylic acid generator together. These superior results obtained with the positive working resist composition of the present invention would have been unexpected to a person of ordinary skill in the photoresist art. Comparative Example a' employing Resin I of Ishihara et al cannot achieve the effects of the present invention.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the §102(a)/§103(a) rejection of claims 1-4 and 6-11 based on Ishihara et al '434.

The Resist Of The Invention Is Patentable Over Ishihara et al Considered In View Of Uenishi et al

In Paragraph No. III of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Ishihara et al (2004/0033434) considered in view of Uenishi et al (6,489,080).

Applicants submit that this rejection should be withdrawn because Ishihara et al and Uenishi et al do not disclose or render obvious the positive-working resist composition of the present invention.

The Examiner's reasoning in support of the rejection as set forth at page 7, first and second full paragraphs of the Action, is not entirely clear. The Examiner appears to concede that Ishihara et al do not disclose the specific resin employed in the present invention, and to assert that Uenishi et al provide the motivation to modify Ishihara et al's resin.

If this is the Examiner's reasoning, Applicants respectfully submit that it is not persuasive and does not defeat the patentability of the present positive resist composition. Per the Examiner, "Ishihara et al disclose, teach and suggest the claimed resins for obtaining high image

resolutions on paragraph 0193 but are not in specific details.” The Examiner states that “Evidence can be seen in Uenishi et al at col. 1:60-64 and resins being read the general structure of formula (1) of c(26 and 36), a resin being read the general structure formula (2) of c(1-10, 14-17, 21-23, 25-27) on columns 37-44.” The Examiner reasons that “Since the above references are all related to positive photoresist compositions, it would have been obvious . . . to use or cite the known resins for a reasonable expectation of obtaining high image resolution as disclosed, taught and suggested in Uenishi et al.”

This reasoning, with due respect, is not persuasive. Ishihara et al at paragraph [0193] cited by the Examiner attribute the results achieved with their invention not to the resin at all, but to the particular sulfonium salt PAG they employ -- and, indeed, Ishihara et al’s invention is a “Sulfonium Salt Compound.” See the title of Ishihara et al’s invention. Ishihara et al state:

“As obvious from the results shown in Table 5, use of sulfonium salt compounds of the present invention as an acid generator, form a pattern with higher sensitivity, higher resolution, more rectangular shape and smaller edge roughness, compared with the patterns form by using an existing sulfonium salt. . . .”

Ishihara at [0193].

Thus, what Ishihara et al are focused on is the PAG, not the resin employed in the resist composition. The mere fact that Ishihara et al and Uenishi et al both relate to positive resist compositions does not amount to the requisite, clear teaching found in the prior art to substitute Uenishi et al’s resins (let alone the specific Uenishi et al resins selected by the Examiner with hindsight) for the resins employed by Ishihara et al. The Examiner’s reasoning appears to be that it would be obvious to use any known resin for a positive resist composition in Ishihara et al’s composition, since “the . . . references are all related to positive photoresist compositions.” This

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is an improper “obvious to try” approach to judging patentability, and is not the proper test of patentability under section 103.

Applicants also refer the Examiner to their response to the section 103 rejection based on Uenishi et al in view of Ishihara et al, above.

Even if a prima facie case of obviousness could be established based on Ishihara et al in view of Uenishi et al, which it cannot, the evidence of unexpectedly superior results obtained with the present invention relative to Ishihara et al (the primary reference for the present rejection) rebuts any prima facie case of obviousness and shows the patentability of the present invention. The evidence of patentability has been discussed in detail in response to the rejection based on Ishihara et al alone.

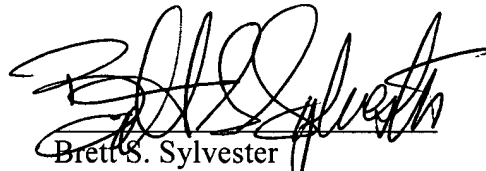
In view of the above, reconsideration and withdrawal of the § 103(a) rejection of claims 1-4 and 6-11 based on Ishihara et al in view of Uenishi et al are respectfully requested.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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23373

CUSTOMER NUMBER

Date: October 23, 2006